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The *Pandanus* (family: Pandanaceae) are Asia Pacific plants with approximately 800 species. They are used traditionally for various purposes. Researchers investigate the medicinal values of these plants and interestingly, they provide scientific evidences showing that the plant extracts exhibited biopharmaceutical properties. Thus, this study aims to investigate the plant concerning the phytochemical aspect through its chromatographic profile and analysis using spectroscopy, crystallography and microscopy. This study was conducted on six locally available *Pandanus* species, namely *P. pygmaeus*, *P. sanderi*, *P. tectorius*, *P. dubius*, *P. conoideus* and *P. amaryllifolius*. Out of these species, only *P. amaryllifolius* was studied by Malaysian scientists. Meanwhile, three other species (*P. tectorius*, *P. dubius and P. conoideus*) were examined by the Philippines and Indonesian counterparts. This work was also emphasized on another two pandans (*P. pygmaeus* and *P. sanderi*), which have never been studied before. Thus, the samples were extracted in relatively small scale (less than one kilogram) and the solvents were recycled during the crude extraction. The extractions were based on both acid base and normal procedures, depending upon the targeted compounds. As for the fractionation and isolation, a range of chromatographic techniques were performed such as Silica Gel Column Chromatography (SGCC), preparative Thin Layer Chromatography (TLC), both normal and reverse phase medium, plus high performance liquid chromatographies (HPLC), utilizing ultraviolet detector. Nearly ninety moieties were successfully separated, exclusively based on the HPLC chromatograms. The identification and characterization of pure substituents were accomplished by using the standard Nuclear Magnetic Resonance (NMR) spectroscopic analysis, Time-of-Flight Liquid Chromatography-Mass Spectrometry (TOF LC-MS) and X-ray crystallography of pure crystals. However, merely seven chemical entities were fully recognized from this *Pandanus* study. Three molecules from *P. pygmaeus* consist of stigmasterol, lignan and a novel pandan alkaloid, practically called as Pygmaeusamine. Two compounds from *P. sanderi* include one saponin (lanostane-type) and saponoside (b-sitosterol glucoside), respectively. Initial discovery included a compound which was comparable to a tirucallane-type triterpene. However, after a detailed inspection from the X-ray crystallography asessment, it was revealed that the compound has a different carbon skeleton from previously isolated triterpene from *Pandanus* species and was classified as a lanostane-type triterpene. In the case of *P. tectorius*, two chemical components were known as a steroid alkaloid and an esterified triterpenoid. Meanwhile, the root of *P. amaryllifolius* possibly contains the same alkaloid as found in *P. tectorius*. Still, the isolated moieties from *P. dubius* and *P. conoideus* were partially elucidated and cannot be completely characterized due to the insufficient amount of pure samples. In addition, the microscopic analysis revealed the presence of raphide-type crystals of calcium oxalate. In short, this is the first documented occurrence of novel *Pandanus* alkaloid, steroid alkaloid and saponoside from *Pandanus*.